

**Airline Consolidation: How Will It Reshape The Industry?
What Does It Mean For Europe?***

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Civil aviation always seems to lurch from crisis to crisis, but we find ourselves at this moment in an unparalleled convergence of short-term stress and long-term evolution. We have seen stress caused by business cycles before in each decade because the airline business is very sensitive to business cycles. Energy prices have caused stress in the industry. Government policies have caused stress in the industry. Herd-like management decisions, especially capacity management decisions, have caused stress in the industry.

Some combination of these seems to cause a crisis at least once in every decade, sometimes more often. But the current interaction of forces pressing on the industry and the external world seems particularly toxic, especially in those parts of the world where markets have not evolved to the point where capacity responds fairly quickly to demand and cost. As a result, we are now in a world that I can't claim to understand fully.

With respect to the financial environment, I am in very good academic company, as far as I can tell from reading the papers produced by macroeconomists and by listening to pronouncements by your political leadership and mine. Nobody understands terribly well what's going on, although everyone tries to induce confidence by pretending that they have some understanding of the situation. What we do understand is that it's bad out there. We don't know exactly when it will stop being bad out there and when it will start getting better and when it starts getting better whether it will get better slowly or quickly. For what its worth, and you should not take my opinion as an expert opinion, I'm inclined to think it will get better slowly because I think it's impossible to decapitalize the entire middle class of several of the largest consumer markets in the world (USA, UK, Japan, Spain, etc.) without it affecting other markets for a long time, especially markets like air transport, which is intimately tied to both business and consumer activity.

In support of this concern, I offer you one statistic: When retail sales in the United States in December, 2008 fell for a one-time record of almost 4%, the savings rate simultaneously went up from nearly zero to 3.6% of after-tax income. Sales have dropped and savings have risen since, not only in the U.S., but in Western Europe and Japan as well. In the United States, people who have any money at all have finally figured out that if they don't provide for their own retirements and provide themselves a cushion against future hardship, no one else is going to. People who don't have money don't buy, especially with credit markets frozen. I think that will affect what they buy from Europe, what they buy from Asia, what they buy from airlines and what they buy from everyone else. A number of economies (Japan, Spain, UK) are in even worse condition than is the U.S.

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More specifically, what do we see in the air transport business? We see both passenger and cargo traffic falling everywhere, along with yields. For February 2009, IATA reported 10.1% lower total international passenger traffic year over year. North America was down 12%, Europe was down 10%, the Middle East, which doesn't yet understand what's happening to it, was up .4% but capacity was up 7.3%, Asia-Pacific was 12.8%. In addition, yields are down and the premium traffic on which airlines—network airlines, especially--depend is down furthest of all. And the cargo results are worse than those for passengers. Considering that the comparisons are to the historically low February base, this is an even worse result than the apparently larger peak season declines IATA recorded last September.

I hear the skeptics among you saying, "well, IATA represents the network airlines, it represents the 'old' airline business." "What about the new low-cost business?" There is no doubt that a major decline in demand is affecting them as well. Their traffic numbers are cushioned a bit by share shift as people search out bargains, but the yield declines at the network airlines suggest that the network carriers are not simply waving goodbye to the traffic; rather, they're competing for it, as they should. And that is affecting low-cost airline pricing as well. So, for the low-cost airlines, the share shift doesn't begin to make up for the total loss in industry demand.

Accordingly, for non-IATA members, expansion has largely stopped and for most, inside and outside the United States, contraction has started. Low-cost and new entrant airlines are all trying to figure out what to do with airplanes that they have on order and all having quiet discussions in Toulouse and Seattle about how to defer or cancel their orders. Where that is not possible, they are grounding older aircraft or flying them less.

Response to this state of affairs varies by firm and by geography. Perhaps the most important factor is what I'm going to call the degree of evolution toward deregulated markets that that individual markets represent. The United States, where deregulation has gone on for 30 years or slightly over 30 years depending on when you think it started, has seen a dramatic contraction in capacity. Those of you who follow the news will know that Delta has just announced that they will reduce capacity yet another 10% starting in September, but that you may have also noticed in that announcement that Richard Anderson, the CEO, still hopes – and expects – that Delta will be profitable for the year. And Delta is not alone. All the U.S. network airlines have announced very substantial capacity cuts. New entrant and low-cost airlines have announced cuts as well.

There's a lesson in that. In those markets where liberalization is most advanced and has been the way of life for the longest time, capacity drops are occurring as rapidly or almost as rapidly as demand drops. In many cases, load factors are actually increasing in an effort to adapt to falling yields. Adjustment is direct and immediate. Even habitual expanders like Southwest and AirTran are reducing capacity, as has JetBlue (which started to do so earlier for multiple reasons). On the whole, capacity has been reduced by double-digit percentages and has returned to the levels of the late 1990s. It will be reduced further, as we've seen in Delta's announcement this morning. The extent will ultimately depend on how much farther the economy declines and how far airline demand declines with it. So US airlines, including low-cost airlines, are continuing to review the situation and they are clearly prepared to reduce capacity further if necessary.

The main U.S. exception to this grim litany is a relatively small (\$700 million projected annual revenues) U.S. airline called Allegiant, of which few of you have ever heard and about which I want to talk later because its success has significance. Allegiant has the highest operating margins in the world and is continuing to grow in a controlled way.

In the rest of the world, the reaction has been slower and less complete. There is continuing, if reduced, expansion in the Middle East (resulting in load factors down 4.7 percentage points in February); we see some continuing expansion in Asia, slower expansion in China. Contributing to the thesis that I'll be presenting this afternoon, Singapore Airlines, the best-run airline in Asia and the one which has made its way for the longest time without a significantly sized or protected home market is the only major airline in the world that is reducing capacity as rapidly and dramatically as the US airlines. Cathay and Qantas, both veterans of liberalized competition, have also reduced capacity significantly, if less rapidly. We are beginning to see this kind of

response in Europe, but it is considerably slower and the cuts have been less deep. I would argue that this is because the liberalized market is less mature, so that jockeying for market share and old habits still inhibit adjustment to market realities.

How long it will take the rest of Asia and the Middle East to get the message remains to be seen, but we are beginning to see some suggestion that even they are getting the word. When I say that the European market is more mature than the Middle Eastern and Asian markets and less mature than the U.S. market, I am of course not discussing your personal characteristics; I'm referring to how long airlines here have had to compete in a single market with relatively open entry and freedom to set routes, capacity and fares. Europe has evolved in this direction for about 10 years and the firms have evolved more slowly than that. In the United States, the firms also evolved more slowly than the market, but the process has been going on for 30 years. For many other airlines in the world, it hasn't even happened yet although they of course feel the effects of its happening elsewhere.

By one consultant's report, a record number of aircraft are grounded worldwide, but the total fleet has gotten so large that that this record absolute number of grounded aircraft doesn't produce a percentage reduction in capacity sufficient to match declining demand. The dramatic reduction in demand and the inevitable further reduction in capacity that will accompany it have raised more urgently questions of industry consolidation, especially in Europe.

As I said, I'm not a macroeconomist. And even macroeconomists are bad forecasters. But even if we are nearing the bottom, only the brave, the optimistic and the political seem willing to suggest that recovery will be soon or swift. It looks like the world economy, and thus the airline industry, is in for a long, hard, forced march over very difficult terrain. Some airlines clearly will not survive the march. Those with the hope or expectation of survival are looking to combine their strengths with others.

But the collapse in demand and the contraction in output that's accompanying it is only the most immediate source of pressure for consolidation in Europe. In my opinion, there are three even more fundamental forces at work:

The first, and most important, is simply the long-term impact of a very substantially liberalized single European market. This market, now greatly expanded once again in size and economic diversity with the eastern expansion of the EU, is replacing a set of protected, nation-based markets. This process is far from complete. A comparable process in the United States, starting from a somewhat more liberalized position, has taken 30 years to approach normality.

For clarity and focus, it's important to understand what normality means: In normal businesses, businesses that don't have airplanes and don't have wings, things are not always good. Not everybody makes money. There are ups and downs, sometimes extreme. The best-managed firms make money in good years and don't have their existence threatened in bad years. The worst-managed companies may make money when the tide floats all boats, but as the tide goes out (and sometimes even at high tide) may be forced to reorganize or disappear. Management's most important job is to craft a strategy that allows success and then to implement it efficiently. A well-managed firm with a good strategy can read the market as and when it changes and rapidly and can efficiently adapt its strategy and tactics to those changes as required to prosper or at least survive. Firms that select or are doomed by their history to an unsustainable strategic posture or who cannot adapt to changing conditions fail. None of this is to slight the need for routine operational competence and cost control. They are a necessary condition. In a liberalized market, if you don't have those, you die anyway no matter what your strategy is.

The evolution toward normality of the North Atlantic market has also taken 30 years, but it's not as complete yet, because the legal framework has evolved less and is evolving more slowly than that governing the U.S. and intra-European markets and therefore limits strategic options and adaptation to changing conditions. Other major world markets are much less evolved than the U.S., intra-European and North Atlantic markets. But wherever it occurs and as it occurs, this

evolution is forcing airlines to search for viable business models—a process that may involve structural change for some and result in the disappearance of others.

Closely related to the search for viable business models that is simply the most important factor affecting the industry right now is a second factor: the emergence of very large networks supported by global alliances, participation in which seems necessary for both large network airlines and small regional airlines. This has promoted network coordination (the ultimate in which is consolidation) that has created and exacerbated competition concerns. It has also created a scramble for participation, including a game of musical chairs as airlines merge and change affiliations and alliances change.

A third factor is the impact of the recession and frozen credit markets on this process. The liquidity that might be necessary to give a firm time to figure out where it needs to be and to facilitate getting it there, including finding and implementing a new business model, is not available. This reduces the time and number of options available to those whose business options are flawed, forcing them to turn to merger partners or their own governments or both. Obviously related to this is the issue of the Commission's treatment of competition issues and "temporary" state aid, short-term or extended, to failing national carriers.

Each of these factors creates both pressures for and constraints on consolidation in the European context. None of these pressures is short-term. Even the recession and the credit crunch will have lasting impact long after they have been resolved.

Let's focus on these influences on European consolidation and consider them one at a time:

The first is the fundamental industry change produced by taking Europe from a protected, nation-centered market to an open, single one. Changes have been going on for a decade, but they'll take quite a few more years to reach even a temporary equilibrium, the sort of equilibrium I was talking about earlier. (In a dynamic market economy, temporary equilibrium is the only equilibrium you ever get anyway.) We can only ultimately reach the question of the direction and impact of consolidation in Europe by asking first 'What kinds of airlines can survive in the emerging open single market?' Then we must ask 'Are they the same airlines that survived in the previous one?' If the answer to that second question is no, which we suspect, we can then get to the question that ultimately drives European consolidation: 'What changes must take place in the number and kinds of European airlines to create airlines that can survive in the liberalized single-European market?' As I say, this process is being accelerated by the stress of current economic conditions. But I want to be clear, the underlying process is more fundamental than the current business cycle.

To answer these important questions for Europe, I think it will help to look at the other two most mature and sizeable liberalized markets that we have. (For this reason, I'm going to largely ignore the very interesting combined Australia-New Zealand market because it's of relatively small size). These are airline markets where liberalization and globalization have been spreading for over 30 years—the combined U.S. domestic and U.S.-Canada transborder market, and the North Atlantic markets.

As I said earlier, the market within the U.S. (and between the U.S. and Canada) is approaching and may have achieved the characteristics of a normal" commercial market. Airlines are free to adjust capacity to demand, to evolve their route structures and business models, and to offer whatever services they think the market will demand at whatever prices they think the market will support. They're also free within the limits of competition law to create and spin off subsidiaries and to acquire and sell themselves to others.

This is not, and will never be, a market in which every airline makes money, except perhaps at the peak of booms, but it is a market in which competently and shrewdly-run airlines can make money in good times and minimize losses or even make a profit—and I'll return to that later—in bad times. In this respect, airlines in the US are no longer different, fundamentally, from retailers, hotels, restaurant chains, or appliance manufacturers. When people like me ever talked about

deregulation and liberalization, we were not talking about a friction-free nirvana – a market in which every firm could make money forever. We were talking about trying to turn airlines into a normal business. Some were skeptical that airlines could ever be a normal business. I claim that what's going on now in the United States is a demonstration that they can be and they are a normal business. Not always fun, but normal.

The North Atlantic market is also much evolved from the perspective of limitations on entry, pricing and capacity. Most airlines have been freed from most bilateral constraints based on their national character, even though significant constraints remain on ownership and acquisition and on infrastructure access. But the market has only evolved part-way in the development and modification of business models, in rational capacity decisions, in practical freedom of exit and in consolidation and spin-offs, in part because governments, European and American, just don't seem able to keep their hands off the business. In some ways, notably the rules relating to the establishment, the internal European market is the most advanced of all, but in most other respects, such as the sorting out of business models and firms, the European market is less fully evolved than the U.S. or even the North Atlantic market.

What can these markets tell us about the likely successful business models to emerge from the liberalized European market? How many firms will be able to successfully occupy each promising niche? Those are the big questions and they will ultimately drive and limit both consolidation and government response to it.

In the US market, virtually every imaginable variation on airline configuration, size and target market has been tried. Many, of course, have not succeeded. What have we learned? We have learned that critical to the whole process is the problem of route density and customer selection, that is, of how many people you can get into an airplane at the same time going to the same place and which customers you design the business for.

Route density determines the size of the aircraft an airline can use and the frequency with which it can fly a given route. With respect to route density, it's important to understand that one is not limited to point-to-point service patronized by local customers. The customers on a particular flight may be only temporarily going to the same intermediate point, about to get off the plane and get onto another plane to go to some other place with other people who are going to the that place. The trick is to gather them and transport them together. This process has important limits: what everyone knows is you can't make money with an airplane unless it is first, of a size that allows competitive unit costs, and second, that you must find enough passengers who will sit together in it at fares that will pay the total cost of running it. I don't mean to insult anyone's intelligence, but this message seems to have been lost on many managements over the years and it is frequently lost on governments.

One very important way to rise to this challenge is to create network airlines. Network airlines are nothing more or less than factories to manufacture route density. They assemble passengers in groups large enough to fill an airplane. They take them to some place where they can mix with other people going on to some other place in enough numbers to fill another airplane and then take them there. And they choose customers willing to pay a combination of prices that covers total costs.

A firm can organize to do this at very large size through a mega-network with multiple hubs, it can try to do it at medium size-with perhaps one or two hubs, it can make agreements with other airlines to mix its passengers with theirs, or it can try to be a regional partner to someone else's hub. But all these strategies represent ways to organize a production line in a factory that produces route density. It shouldn't be a surprise that after many experiments with the concept, not every factory is operationally or economically sustainable. For example, the factory may simply not be large enough to sustain enough routes and enough trips with enough passengers per flight to allow the use of aircraft with competitive economics operating with enough frequency to be competitive in the marketplace.

Now, what helps most to sustain this factory? What we have learned is that the single most important factor, more important than anything else, is the availability of a significant quantity of traffic which originates or is destined to the central point in the factory (we will call this “hub O&D” traffic). Why? Because a customer at all but the smallest spoke usually has a choice of the products of several or many factories. What is produced for spoke passengers is attractive in some ways but inferior in some other respects. It’s superior in the sense that she gets multiple departure times and a choice of routings to get where she wants to go, but it’s inferior in that no matter what the pleasures are of the casino and the art museum at Schipol or the erotica stores at Frankfurt, to experience them she is forced to make a stop and an aircraft change that she would generally prefer not to make. Going to the time and trouble of getting off an airplane and getting on another airplane and taking the risk of a missed connection or lost baggage is something that most people don’t want to do if they can avoid it. On the other hand, in all but the densest markets, not enough people want to go to the same place at any given time to be able to fly them there directly at acceptable cost, so they must be somehow be aggregated with others wanting to make the same trip.

One way to aggregate them is to induce them to use ground travel to a particular point where enough of them can be assembled at a particular time to form an economically feasible group. But if the aggregation often does not occur at the place, time, or even on the day that they would prefer, the strategy will require that you pay them with low fares for the geographic or temporal inconvenience. Another way to aggregate them is to take them by air from a convenient airport at a convenient time to another assembly point, which is the hub, and then to their preferred destination at a preferred arrival time. An airline carrying passengers from spoke to spoke in a hub system is basically compensating them for the inconvenience of changing planes, by using the hub to give them many more destinations and departure times than could be offered with direct service, or by charging passengers with alternatives less than nonstop passengers to compensate them for the inconvenience of the stop, or both.

Contrast this with the airline’s business proposition for hub O&D customers: to them it says ‘Look, we are going to take you nonstop to more places than you ever dreamed you could fly to directly because we are going to make good economic use of all those people we are paying to get on the plane with you. We may charge you more to do it, but most of you will consider it good value to pay a premium to avoid a stop.’ So an airline has a natural advantage with respect to its hub O&D traffic. It attracts more of them and can charge them more. They contribute disproportionately to the costs of operating the hub and benefit disproportionately in service convenience. If an airline’s hub is at a city of 700,000, this natural advantage may not support a competitively sustainable system. But if its hub has a catchment area of 5 million prosperous people who do a fair amount of travel, then it has a business.

If an airline system can combine hubs so you can serve O&D traffic with a combination of direct service and connecting service through the other hub to provide more departure choices or to connect through both hubs to get service to even more obscure places, you can have a further advantage in attracting those people onto your airplanes. Mega-networks with multiple hubs can find a successful niche -- not a guaranteed success but at least the possibility of one -- because they provide demand-side advantages and supply-side advantages in terms of aircraft economics.

On the other hand, we should be clear: these mega-hubs face major cost challenges. Their complexity and operating difficulties are enormous. Having so many airplanes on the ground at once is very wasteful of facilities and ground staffing, and requires a bigger capital investment and more staff for a given amount of traffic volume (RPMs – Revenue Passenger Miles) than would direct service at economically sustainable density. The ballet that running a hub requires is so intricate and interdependent that if one member of the dance company trips, the other dancers trip over them, causing major disruption, especially to connecting passengers. In addition, this large, highly coordinated and delicate operation is very vulnerable to labor disruption. That vulnerability means that a major hub airline incurs labor rates and work rules that tend to be more costly than for airlines that have chosen another business model. In the US, the jury is out on medium-sized hubs, even as part of larger networks. U.S. airlines have struggled to sustain viable

hubs at medium-sized cities, some which have catchment areas of well over a million reasonably prosperous people.

If mega-hub airlines have struggled to make hubs at cities like these economically viable, it perhaps should not be surprising that attempts to make such smaller hubs viable as an airline's sole hub have mostly not worked at all. Some have tried to play a low-cost second violin at a major hub city that already has another airline hubbing, succeeding by playing only the most popular tunes at lower prices. While that hasn't always failed, it has generally not worked. The bleached bones of second-generation Braniff at Dallas/Fort Worth, two different Midway airlines at Chicago and Independence Air at Washington Dulles, as well as a number of others since 1978, are evidence of the difficulty of making this strategy work. AirTran and Frontier still hold out hope for the model.

Many hubs can't work on a stand-alone basis, but they may work as focus cities in an attempt to capture O&D traffic for mega-hub systems so that, for example, Northwest Airlines (now Delta), has maintained some nonstops at Indianapolis to cities other than its hubs to maintain the loyalty of Indianapolis-originating passengers when they are choosing a hub connection to take them to places that they must connect to reach. They teach in the strategy classes in business school that if there is something your customers want and you don't offer it to them, someone else will. So an advantage of a mega-hub airline is that it can offer to some important cities some non-stop service that bypasses its own hubs, hoping to capture both the non-stop traffic and a disproportionate amount of the connecting traffic through its hubs.

What all this seems to suggest is that much of a liberalized world will be dominated by mega-hub systems. Does that mean that investors are wasting their money putting it elsewhere in the airline business? Does it mean that those making public policy should assume that when the dust settles, Europe will be dominated by, say, three mega-hub systems?

No. There are other ways to survive successfully in a liberalized system. Ultimately, the question for Europe is what are these strategies and how many firms can we expect to survive using them? Will those firms provide effective competition to mega-networks?

The first and most obvious alternative strategy is the low-cost point-to-point airline. Mega-hubs face disadvantages. Funneling traffic through hubs imposes cost disadvantages. Forcing passengers to make connections can create demand disadvantages; sometimes hub airlines can overcome them with frequency and sometimes not. These disadvantages create a possible strategy alternative – direct low-cost service. We have seen spectacular growth in such airlines when they are introduced into a liberalizing market that has not yet fully evolved from its history.

At first, the availability of direct service at fares very much lower than historic levels creates explosive growth, especially in times of relative prosperity when travel volumes expand as new customers are drawn into airline travel and previous customers greatly expand their frequency of use. This often has led to the prediction that point-to-point low-cost airlines are the “way of the future” and that network “dinosaurs” are headed for extinction. At the beginning, it seems that anyone with airplanes and low costs can succeed. But as the market matures, the dinosaurs adapt or die. The ones that survive are hardier and they grow bigger and more voracious. And as the limitations on point-to-point airlines become more apparent, many begin to die.

Remember why hubs are created: There just simply aren't very many markets in the US or Europe in which one can operate a stand-alone, high-frequency point-to-point service. And in most of those markets, the point-to-point airline will be sharing the route with a network airline that has a hub at one end and doesn't depend on filling the airplane only with passengers in the local market. So this represents a real constraint—it enables the hub airline to operate more frequencies with full planes and produces vulnerability to a kind of fractional entry by network airlines, where it puts in a number of trips a day at prime times and funnels the rest of the market's traffic through an intermediate hub.

One way to avoid this problem is to manufacture route density in a different way – by expanding the pool of travelers from which you can draw customers. An airline religiously devoted to low costs can offer fares low enough that the catchment area that it serves is much larger. This can be done in two ways: The airline can expand volume at the principal airports to levels that will support both itself and the hub airline, which won't find the fares attractive enough to expand capacity to accommodate all the demand. Easyjet has used this strategy at Gatwick.

Alternatively, an airline can fly from some Godforsaken airport to another Godforsaken airport at a very low price and expect people to undertake a fair amount of trouble to get to your airplane and from the Godforsaken destination airport to their true final destination. Southwest has pursued this strategy vigorously in the U.S. As Ryanair has proved dramatically, it can work in Europe as well.

But this strategy imposes its own limitations on point-to-point airlines. At a certain point, the area is covered. It has already attracted everyone within two hours of the airport. Its costs at the primary airports are high and its fares can go only so low. The inaccessibility and limited route options at secondary airports make it difficult to attract business travelers. So it reaches a natural limit of expansion. As JetBlue has discovered, there are only so many routes between primary airports that will support mega-networks plus the low-cost airline. And as Southwest has discovered, you can't just keep adding service at more and more secondary airports. Eventually, you've got an airport within two hours of almost everyone who can be stimulated to use it by low fares. Business travelers will tend to use primary airports because they can get more direct service to airports closer to the places they really want to go. If you put service into another secondary airport closer than a two-hour drive to the secondary airport you're at, you're dividing the traffic between two flights and two stations without increasing the total customer base proportionately. This presents a real obstacle to continued growth.

So the next evolution in the United States for the point-to-point low cost airline has been the development of what I have called quasi-hubs that can succeed where traditional network hubs fail because they are constructed to offer less connecting convenience and thus impose less of the cost penalty of a traditional hub while keeping prices low enough so that people will accept the inconvenience. The hope is to attract more premium passengers through frequent service to more destinations while still offering lower fares than network airlines to them and to leisure passengers. At a quasi-hub, the airline puts fewer planes on the ground at the same time and offers more loosely constructed connections. This means fewer gates, investing less capital in ground facilities and getting better aircraft utilization, because the planes do not wait long for passengers. The operation is less tightly integrated and less fragile and complex. There is less damage from delay than at a hub, because there is less interdependence.

When the point-to-point airline does this, it becomes more like a hub airline. Its costs go up, but not necessarily to the levels of a hub airline but it also attracts fewer premium passengers than does a true hub. Its fares go up too, and this plus the likelihood of using a connection limits the ability of its service at secondary airports to attract passengers from a large radius. And it still can't provide convenient services to conveniently located airports on routes of low density, because its loose connections impose long waits.

In the end, the route density dilemma presents a severe challenge to the point-to-point low-cost model. That does not mean that airlines cannot survive in this mode, but it certainly affects how big they can get. In the evolved but still dynamic U.S. market, Southwest is the paradigm illustration. It started as a high-density point-to-point airline between big cities in Texas and then immediately after deregulation in the upper Midwest, with frequent service. Then it grafted onto that system an expanded catchment area airline (not as extreme a version as Ryanair's), putting service in cities like Albany, New York and Ontario, California and Manchester, New Hampshire and Boise, Idaho and expecting people to drive to get on their airplanes. But its growth plans were ambitious (it is now the largest airline in the U.S. in terms of number of passengers carried and operates over 500 Boeing 737s) and it discovered there was a limit to how much it could grow that way.

To grow further, Southwest has created a number of quasi-hubs at Baltimore, at Nashville, at Phoenix, and so forth. Baltimore and Phoenix and several others are now evolving further toward resembling hubs because they've discovered that premium-paying passengers don't want to wait two or three hours for the next flight. They don't like getting off the airplane and running to stand in a line for an unassigned seat behind someone whose time has no value at all and who got to the airport two hours ago so that they could get to board early, and then discovering that they have to sit in a middle seat and can't put their carry-on in the overhead because the others got on the airplane first. So what is Southwest doing? It is coordinating its schedules more, using more gates and more staff. It is offering priority boarding passes to people who buy certain classes of tickets. It has begun, in effect, to tell the passengers "you can treat us as though we're a network airline" but still tells Wall Street that it is not a network airline, because it wants to preserve the capital-raising advantages of being seen as a low-cost airline.

Another airline that has experienced the limits on growth of the point-to-point model in the US is Jet Blue. Jet Blue discovered ultimately that no matter how hip and how fancy and youthful and "in the present tense" its service is, there are only so many city-pairs it can serve carrying mainly point-to-point traffic (JetBlue offers some connections from smaller Northeast cities onward at JFK in New York). It's not a surprise that Lufthansa has bought into them with an eye toward coordinating service with them and Jet Blue has begun to expand its own international service. Pursuing the concept that point-to-point service in leisure markets, including international leisure markets represents a defensible niche, JetBlue has greatly expanded service to the Caribbean and northern South America. Looking for a new expansion path for point-to-point service, it has also opened an important second base at Boston. And most significantly, in an effort to expand route density to allow service in thinner Boston markets, it has developed a quasi-hub at JFK allowing Boston-origin passengers to connect to its entire system. It has also made a somewhat more modest effort to do the same thing at Washington Dulles, where United has a hub. It remains to be seen whether this "second fiddle" operation will succeed.

I have been describing successful point-to-point low-cost airlines that reached the limits of growth of this model and evolved their strategies, each in somewhat different ways. Now I'd like to examine an instructive instance of the failure that comes from not respecting the limits of this strategy. Virgin America, which has fought like devils with the support of all of you in this room to be able to own and operate an airline in the United States, finally got what it wanted (although protectionist wolves nip at their heels to this day) and has chosen to use its low costs to fly non-stop at low coach fares (and to offer a high-content premium product to raise yields) in markets that already had non-stop service from several US network airlines and JetBlue, all of which were supporting their systems with marketing presence and feed. Virgin America has discovered that if a strategic model is structurally deficient, great advertising and a really hip entertainment system just won't save it, just as TWA and Eastern and other large U.S. network airlines discovered that having a big network and a great history wouldn't save them from the effects of high costs and poor execution.

Virgin is experiencing very poor financial operating results. It helps its staying power that it raised a lot of money in the good old days, but you know the old joke about how to become a millionaire in the airline business—start with a much larger sum of money. Virgin did, and they're becoming millionaires. Even the enormous U.S. transcontinental markets won't support four mega-network airlines, a modified point-to-point low-cost airline (JetBlue) and Virgin America.

What are the lessons in all this and what has it got to do with European consolidation? What all this tells you is that it is difficult or impossible to repeal the iron laws of airline economics. Route density, costs and the ability to attract and hold higher-revenue passengers who will accept price discrimination are the dominant factors. Hub airlines can work and point-to-point airlines can work. But hub airlines should be big. And point-to-point airlines are limited in their size by route density no matter how low their costs are. They should be small—not tiny, but small relative to mega-networks. Airlines focused solely on low-yield leisure passengers need to be specialized in a way that keeps their costs low enough to be profitable. If low-cost airlines want to become quite big, they will have to invent a new way to get around route density that is

competitive with hub networks and doesn't raise costs unacceptably. We have learned from the U.S. and the North Atlantic that there are few other ways to go.

The search for new models that maximize route density and raise yields while preserving low cost continues, but the principles that will govern European consolidation are old ones. Seeking to maximize route density, most of the airlines that have survived, for example, try to combine leisure and business traffic in varying portions. But interestingly enough, one ultra low-cost airline in the United States has had great success not following that route. Even more interesting, in it one can see echoes of the history of the European market, which has for fifty years had a low-cost leisure segment, originally tied to tour operators by regulation, but now still serving customers who will adapt their schedules and destinations to an airline that offers them mass-market leisure travel at rock-bottom prices.

This airline is my favorite example of what it means to be a smart management in a totally liberalized airline industry. It is the airline I mentioned to you before—Allegiant. Allegiant is very profitable. In fact, it is probably the most profitable airline in the world. What's the magic? The magic is they fly from small cities that nobody else wants to bother with and they fly only a few times a week, mostly to leisure destinations and they sell, but don't require, hotel packages and other ancillaries. This is fairly novel in the U.S. market, but you Europeans have seen this before and can still see it early in the morning at East Midlands Airport or Paderborn or many other smaller cities now, although you regard it as very old-fashioned and likely to be extinguished by the Ryanairs of this world. Europe has historically had Inclusive Tour Charters and still has airlines dominated by tour operators that fly full planes from small cities on inconvenient schedules at very low fares. These airlines are free now from regulatory restrictions in Europe, but they are still emerging from their past, evolving their strategies and operations and experiencing some casualties themselves.

Allegiant Airlines has gone back to the future. It resembles a European leisure market specialist, except that like Ryanair and unlike most European leisure airlines, it is unconnected with a tour operator or travel company and has grown up in a world without real restrictions on what it does, so it has evolved a very pure and opportunistic variation of the low-cost low-density business model. Allegiant flies from forty or so U.S. cities like Sioux Falls, South Dakota and Bellingham, Washington and Allentown, Pennsylvania and Peoria, Illinois to some selection of Las Vegas, Los Angeles, Orlando, Phoenix, and Tampa -- not connecting every one of its small city to every one of its sun destinations.

Any passenger whose time is worth anything will only occasionally find that she wants to go to Orlando on just the day and at just the time that Allegiant is flying, although if she does, she'll get an unbelievably cheap fare. If time and schedule really matter, she will fly a network airline to its hub and make a connection to somewhere else. But Allegiant controls its capacity very carefully and schedules to maximize efficiency. Like Ryanair, it keeps ground staff to a minimum and pays very low airport fees. It controls capacity very carefully and at many of its cities doesn't operate daily. Its fares and focus on popular mass-market destinations attracts passengers from miles around these small cities. Allegiant's load factors had been in the high 80's, but the pressures of low costs have stimulated it to move them to the low 90's.

The message here is not that Europeans should copy Allegiant. It has copied you, but without historic labor costs and commercial practices evolved from a regulated era. The news is that this model survives and provides competitive discipline for leisure fares in a fully mature liberalized market. It should not be written off. If an airline exercises discipline regarding its size, keeps its labor costs under control and its other costs very low and positions its capacity correctly to control its load factors, it can make money at this. Can it become a mega-airline in this mode? No. Will Allegiant figure that out? I believe actually that it will. I think they have watched this movie enough that they understand that they cannot become as big as United Southwest in this mode, but they can survive very profitably.

What does all this mean for consolidation? First, that Europe will probably see a continuation of the trend that is emerging now, where airlines of this type are being forced to get their costs down and consolidating where necessary to get assets into the hands of managements that can use them to maximum efficiency. This process will take time, precisely because there is a historically large universe of firms serving this market with varying degrees of effectiveness. That kind of consolidation will definitely occur, but this model will survive industry-wide consolidation. How big and ubiquitous can these airlines get? That will depend on whether there are significant economies of scale or marketing scope. I suspect that there are. It will also depend on whether it is efficient to combine these firms with the Ryanair model, offering transportation not primarily focused on established tourist markets. Historically, large size has been associated in the airline industry with high labor costs and that may militate against consolidation in the low-cost sector. But as long as the activity is widespread, whether it is concentrated in one or dispersed in many, it will operate as a check on the results of the network consolidation that is now occurring and will surely continue.

Is there anything else we can learn about European consolidation by studying the North Atlantic market? The fundamental economics are the same. Route density is the same issue. There are networks that use hubs we call gateways that are not necessarily on the seacoast. Airlines try to fill the airplanes at the gateway by combining passenger itineraries. As with continental markets, the key to network extent is how small a plane can you fly and still have competitive costs. We now see 757s being used extensively in North Atlantic service by U.S. airlines with strong hubs. It takes fewer people and fewer premium passengers to pay for the airplane, which means the airline can serve smaller traffic flows with its network and serve more airports. One of the paradoxes is that the bigger your network, the smaller the city you can serve. For any airline smaller than a mega-hub, the function of a gateway hub depends on its O&D traffic, but even at New York, successful service largely depends on having a hub either at New York or at the other end of the route. But the New York market is so big, that it can support viable service in 757-size aircraft even to relatively small cities, especially if augmented by even a limited amount of flow traffic.

On the other hand, if an airline's gateway is Cleveland or Brussels it discovers that it can serve only the very biggest airports and struggles to make adequate yields because there is so little O&D traffic on the airplane. Network airlines with low O&D gateways are at a major disadvantage as a result and struggle, and often fail, to achieve profitability. Weak gateway hubs can work with as part of a larger system consolidated by merger or alliance that gives them virtual hub presence and offers customers alternative routings (nonstop to the largest destinations in smaller aircraft and to smaller airports via another hub), but they can't work on a standalone basis. (The recent agreement between Aer Lingus and United takes this a step further, with Aer Lingus flying a spoke from United's hub at Dulles to a destination in a third country that it couldn't possibly serve economically on its own.) What this effectively means is that an effective North Atlantic competitor must be part of a mega-network.

What *that* produces is a powerful force for actual or virtual consolidation, since every large network airline in the U.S. or Europe has discovered that it can't compete without a transatlantic component. Even quite large network airlines have discovered that they are at a disadvantage unless they are part of a very large network. So we have seen mergers between Delta and Northwest and Air France and KLM, Continental in an alliance first with Northwest and Delta and now with United, Lufthansa and Star (using antitrust immunity to form a virtual firm), and we see intense merger discussions between British Airways and Iberia and between Lufthansa and almost everyone not otherwise attached (already effectively consummated with Swissair and SN Brussels and about to be consummated with Austrian and BMI).

Ultimately, Europe will be reduced to the minimum number of networks that can compete in the internal market and in all important liberalized international markets (with a decent share of protected international markets as well). At the moment, this looks like three networks, Air France+KLM+Alitalia/Skyteam, British Airways+Iberia/Oneworld, and

Lufthansa+dependencies/Star. Smaller European airlines will either merge with or become protectorates of the larger groups (this is effectively a “make or buy” decision).

Should Europeans be concerned about this? On one hand, consumers have indicated decisively and repeatedly that they prefer to do business with very large networks. Preventing those from forming destroys value. On the other, concern over where price discipline will come from is inevitable and understandable. With respect to “domestic” markets in Europe, the U.S. offers some comfort. It is still a very competitive market, even as large networks form, because even after thirty years, most customers with a car have access to a low-cost airline alternative. In Europe, there are around 50 low-cost airlines now. Many, probably most, of these will surely fail or be merged into others, if the U.S. experience is any guide. But Low-cost service from Easyjet, Ryanair, perhaps a German, Spanish and/or Italian airline and the successors to IT airlines will not disappear even if other small competitors are eventually absorbed into networks or disappear and some cities cease to be hubs. To the extent that Europe connects its airports to its superb rail systems, extending airport catchment areas, it will benefit perhaps even to a higher degree.

I know may be a little boring to say that we have everywhere gotten the same lesson from the airline deregulation experiment, but Einstein once said that insanity consists of doing the same thing over and over again and expecting a different result. So in short, we’ve learned that in order to succeed, an airline has to a business strategy that identifies a source of competitive advantage and it has to organize efficiently to pursue it. And we have learned that there are relatively few of those strategies that promise survival over time in deregulated airline markets.

While we have to recognize that in some respects, European markets, especially Western European markets, differ from the US in identifiable ways, whether those differences will lead us to different outcomes is still an open question. I am inclined to believe that they don’t, but let’s look at the differences between the US domestic market and the EU27 market:

The US domestic market is more than three times larger than the EU27 domestic market right now. In Western Europe, unlike North America, dense, short haul city pairs are often well-served by rail and increasingly they get serviced by high-speed rail. So air service is less important to the total travel picture except where geographic barriers intervene. The significance of that is that passengers get bled off into the rail system. This may well mean that fewer networks can survive in Europe than have survived in the U.S. It certainly suggests that you shouldn’t expect more.

In Europe, for historic reasons there has been less combination of business and leisure traffic in the past than in the U.S., but this is changing rapidly as European network airlines compete for leisure passengers and European low-cost airlines compete for business passengers. While regulation attempted to reserve business traffic to protected national carriers, nation-based network fares were very high. The result was the development of a low-cost IT sector. This is being replaced by a variety of low-cost services, but I predict that when the dust settles ten or twenty years from now, you will still see IT-type service specialized to the leisure sector, Ryanair point-to-point service ultimately limited in size, but exploiting relatively large catchment areas with very low fares, perhaps a low-cost alternative based at major airports like Easyjet and mega-networks.

In Europe, national markets are still more strongly differentiated than regional markets in the US or Canada. A border still means something. A border is a language barrier, it’s a cultural identity, it’s all sorts of things that a state border doesn’t mean in the U.S. I’m a New Yorker. I think Texans are very different and in Texas, they think I’m a strange creature as well. But the differences between us are nothing like the difference between Norwegians and Italians. That clearly matters for some marketing purposes. Whether it will matter over the long term or not is another question. I think it won’t matter much, but it will affect the historical path and the rate of change.

Unlike in the U.S., where only three airports have restricted access, many important airports in Europe are limited by environmental and political constraints in a way that makes competitive expansion difficult. The effectiveness of alternatives to mega-networks will depend critically on

making those airports available to low-cost carriers of various kinds, even though much of the competition will come from nearby secondary airports. It's the knowledge that traffic is not "locked up" that forces networks to compete with each other and low-cost airlines.

And finally, and crucially different, governments have repeatedly intervened in Europe to preserve national champions where it seems to them very important to have an airline of their own, operating from their very own capital, despite the State Aid provisions of the Treaty of Rome.

But observe what is happening in Europe now. To reiterate: price discrimination has given leisure passengers access to network airlines, weak historic national carriers are failing or looking to fit themselves into larger networks while maintaining their hubs, and even large network airlines are combining into still larger ones. There has been a proliferation of low-cost airlines with a few growing very rapidly (but remember that we saw that in the United States and most ultimately failed). Low cost airlines are trying to combine business with leisure passengers to raise yield. This has proved difficult but not impossible in the U.S. In Europe, Easy Jet is the largest example, but there are significant examples in Germany, Spain, Italy, and at the margins of the EU in Turkey. A few are likely to survive; others will fail or be absorbed into mega-networks or other low-cost airlines.

As we've seen, alliances can facilitate virtual consolidation in marketing while keeping production separate. They represent a way to separate the factory from the store. Since there are cost disadvantages in operating a very large factory, we can note that airlines don't exhibit economies of scale in production. This will surprise many, including some very senior airline executives, but it's true. You can get more revenue if you're bigger, but your costs go up as well. Everyone talks about things like joint-purchasing and so on, but in the end, the cost of running and coordinating a huge, complex factory vulnerable to labor stoppages is very high. There are great advantages to creating networks with very large scope that can serve all of the travel needs of travelers at a given origin location. These advantages come from offering more choice, marketing it and from managing the large price discrimination task that's necessary to recover the cost in multi-segment travel. One way to do this is to create a commonly owned network of very large hubs.

Such a network can be achieved by merger, but merger has the disadvantages I have just discussed, with transitional costs added. It can be achieved through alliances, but they present problems of coordination, legal and technical. And it's also difficult to create stable relationships in an industry that changes all the time. Northwest and Continental were wed forever until they weren't. This is a hard game to play on a purely contractual basis. Perhaps the emerging European model of holding companies may be a solution to this, provided that the competition authorities allow this model to develop and provided that the holding company can control its commercial vanity enough to allow production decisions to be made on a dispersed basis, even as network decisions are made on a centralized basis.

The scope advantages of large networks, the intercontinental character of demand, residual obstacles to international ownership that will remain for many years in Asia, regardless of whether they're resolved in the US, (and I'm not optimistic about that in the near term), mean that alliances will be very influential in shaping international and European aviation. At any given time, the number of global alliances that exist is determined by the number of mega-networks that can survive in the most important market areas: Europe, the U.S. and East Asia. Right now, since we have 5+ large hub airlines in the US and Asian markets are well behind in liberalization and alliance participation, the key question to how many alliances there will be is how many mega-hub systems will there be in Europe?

I have suggested that the number is likely to be three or four. If it's three, there will be genuine competition concerns, but I am not sure if they can be addressed without losing the benefits of mega-networks. From a competition standpoint, I think concern is certainly justified if the number goes below three and the costs of suppressed competition are likely to exceed any possible benefits from creating fewer than three still larger networks. An interesting and

important question is whether a fourth large network can be created, perhaps through another alliance. This question is interesting because answering it positively would require the development of an alliance model that does not now exist, although Southwest and Westjet have discussed experimenting with it.

Possibly the evolution of EasyJet and perhaps an airline or airlines like Vueling and Air Berlin may make it possible to create a fourth mega-network in Europe, even if it's somewhat different in character from the other three. We'll see. But the key concept is that the number of global alliances will be ultimately determined by the number of mega-networks in Europe. . . Finally, the third major factor is the role of state and EU governments, especially as the financial crisis continues. Consolidation requires the willingness of the EU competition authorities and state governments to allow it to happen and the financial liquidity to make it happen. With respect to competition policy, we've also learned a couple of things that have pretty important implications for state aid. Offering originating passengers choice is critical to a successful competition policy. That they may predominately choose one carrier over another isn't a competition problem, but access to the airports at which tickets are sold is critical if networks are to be competitive with each other and able to form and reform in response to market conditions. Few, if any airports can support more than one airline hub, but while the particular network may dominate an airport, there are travel opportunities that customers value highly that can be provided by other carriers: other mega-networks or other point-to-point carriers. Most hub-dominated airports welcome low-cost competition, especially if they are privatized, even though the local network airline may not be thrilled, because that competition serves as a competitive check on fares and maximizes ancillary revenues.

To preserve competition in an environment that includes dominated hubs, all networks plus low-cost carriers have to have practical access, as needed, to every airport of significance as an origin and destination airport. That condition may exist at Schipol, but it does not exist all over Europe. Airport owners and operators and dominant airlines therefore can influence competitive outcomes and one needs to be concerned about them from a competition policy standpoint.

Paradoxically, we've also learned that weak airlines can't be supported by competition policy without depriving the public of the benefits of a competitive airline system and perhaps not at all. Either the system is competitive and allows weak airlines go to the wall, while the authorities say 'We've lost a competitor, but we haven't lost competition.' Or you can try to protect everyone or, even worse, choose favorites, and try and prop them up. Since the only way you can prop them up is by inhibiting competition from airlines or at prices that the public prefers, you end up with the same result as oligopoly or monopoly and much less economic efficiency.

Supporting airlines without a viable strategy is not attractive to the private sector and frankly it's too expensive for the public sector. One way Europe is different from the U.S. is that you have tried selective subsidies here, but it turns out that, given the modern scale of airlines, even a government can't afford to support a money-losing airline. Ask the Austrian government. Ask the Italian government. In the current economic environment, private credit may not always be available to facilitate an economically necessary consolidation and the political will may not exist to permit unaided liquidation of non-viable airlines. This suggests that state aid, subject to very stringent tests which I am not at all confident will be met, could be accepted as sometimes necessary, but only as a device to ease exit. This means that it should not be acceptable as a device to prolong operation or existence or to prevent the social costs or disruption of having a non-viable airline disappear and certainly should not be acceptable to preserve or construct a national airline flying the flag, whether government-owned or not.

To summarize: The great Danish physicist Nils Bohr said, "Prediction is very difficult, especially about the future." Much can change, but I think we can see the outlines of the future for European consolidation from here:

--Less dense traffic flows will be dominated by networks, except to the extent that the flows can be concentrated by low prices, making up for inconvenient ground access or schedule.

--Where possible, hubs with sufficient O&D traffic will grow in size. Hub size matters, especially for concentrating longer haul traffic and also, paradoxically, for serving smaller markets. So infrastructure restrictions in Europe may make mega-hubs difficult to construct, but they are necessary and will be built.

--Particularly since the growth of mega-hubs may be difficult, multi-hub systems are likely to offer the best opportunity to provide more customers at each origin point a larger choice of competitively attractive routing, so I believe the multi-hub systems now under development will grow. In the end, the hubs that are tied together need to be reasonably strong hubs on their own.

--This means there will be a Darwinian process of hub selection, ultimately leaving some countries without a hub airline. Similarly, there will be a Darwinian process of mega-network construction with false starts and revisions along the way.

--I do not think that we should necessarily assume that Air France/KLM is the last word in mega-hub structures or that Lufthansa and its seven dwarfs are the last word in mega-hub structure or that British Airways will not finally find a way to get together with someone or that all the existing structures will not fall apart and be rebuilt differently. We have had 30 years in America and the look of our system has changed in each decade. You are only 10 years into the process. Maybe it will only take you 20 years instead of the 30 it took us, but we don't know yet what the end result will be.

-- Due to the different economics of production and marketing, mega-networks won't necessarily be operated as one mega-firm and if the competition laws permit, may not even be made up of commonly-owned firms.

--Concentrating flows by attracting travelers from a large catchment area and from preferred departure times with low prices requires exceptionally low costs. Low cost point-to-point growth will continue, but ultimate limits will affect the size and number of airlines.

--Consolidation will occur in this sector as well. For those of you old enough to remember, a hundred low-cost airlines may bloom as in Mao's famous Hundred Flowers Campaign of 1956 and 1957, but as happened then, most will wither or have their heads chopped off. We will see a great deal of concentration in this sector, as is going on now between Air Berlin and TUIfly and Vueling and Clickair. --The low-cost landscape will change a great deal over the next ten years.

The process, unless stopped by government, is going to leave Europe with three or maybe four new mega-networks, each part of a global alliance. It will leave it with an active low-cost airline sector with relatively few firms of large size in that sector. The others will be leisure-oriented niche players like Alliance in the U.S.

--There's some possibility that European, North American, and Asian low-cost airlines may invent the global quasi-network, as I have suggested. They may be more loosely coordinated than conventional network alliances. We see the beginning of exploration of such a concept in North America. If so, such a quasi-network would allow low-cost airlines to provide global competitive discipline to traditional networks in much the same way as they do in North America.

--We do know that there will be much experimentation for quite a long period of time. The current economic crisis, paradoxically, will both shorten and lengthen the experimental process. It will hasten the departure of airlines that have no special reason to exist. On the other hand, it means that for the foreseeable future, there will be a large supply of aircraft available at relatively low cost that will tempt entrepreneurial managements to start or expand low-cost airlines at historically low capital costs. We can be confident that much failed experimentation of this sort will occur over at least one more business cycle and perhaps more.

--There will be some new hubs in large non-capital cities that were not used as hubs by national carriers. We're seeing the beginnings of this in Germany. There will be capital cities that no longer have their own airline, or even a hub. The ultimate result — a fair number of hubs

stitched together in a few networks, a low-cost sector with a few large airlines and an indeterminate number of smaller airlines, and less than perfect but very vigorous competition on the whole benefiting consumers, after a period of great ferment and experimentation.

Even if we recognize the forces acting on the market and the directions in which they are pushing it, all this will take time. In the United States, it has taken thirty years to reach the temporary equilibrium that is all you can expect in a normal business. During that period, over a hundred airlines have started up and over a hundred have disappeared, some with histories going back to the dawn of commercial aviation. In the North Atlantic, we are approaching a normal business, but the process is still not as advanced as in the U.S., partly because the shape of the European air transport market is not yet defined. And it is important that we note the level of upheaval and transformation that are possible and perhaps inevitable over time in “normal” businesses: automobile manufacturing, retailing, and hotels, to name just a handful.

Finally, while I believe the process is inevitable, it can be helped or hindered and made more or less expensive by governments. What’s needed is a flexible competition policy that focuses on consumer choice at the origins where tickets are sold. Also needed is government understanding that forcing the continued availability of choices customers don’t want is not a competition benefit. The policy should emphasize access, not count airlines. It should actively discourage governments from designating or preserving national champions and especially discourage them from using infrastructure to hinder competition directed at national favorites. It should insist that state aid be combined to exit strategies, not to preservation or expansion. The process will take a long time, but policies that intelligently influence it without micromanaging it will ultimately produce a normal airline industry. “Normal” will still be turbulent, because the world is turbulent, but airlines evolving as a normal industry will benefit both consumers and well-managed producers.